

**CLAIMS**

This listing of claims will replace all prior versions and listings of claims in the application:

1- 14 (Previously Canceled)

15. (Currently Amended) A real time PCR instrument comprising:

- an excitation unit comprising:

- a rotating carousel comprising at least 24 reaction vessels containing a reaction mixture, wherein said reaction vessels are positioned in a monitoring position in that fluorescence excitation and monitoring are performed along the same axis of the positioned reaction vessel,

- at least 1 a single light source capable of emitting light toward [[a]] the reaction vessels containing fluorescent compounds,

- a lightpipe being arranged for receiving light from the reaction vessel and capable of distributing homogeneously said light into optical fiber bundles, wherein the light does not pass through a wavelength excluding device prior to being distributed into said optical fiber bundles,

- a detection unit comprising at least 5 separate fluorescent detector entities, each of said detector entities having a central detection wavelength, said wavelengths being distinct from each other by at least 25 nm,

- a plurality of at least 5 optical fiber bundles, each said bundle being arranged for receiving homogeneously distributed light from the lightpipe, and transmitting said light to said fluorescent detector entities, and

- means for heating and cooling, ~~and~~

~~- multiple reaction vessels for containing a reaction mixture,~~

~~, wherein the excitation and detection units are located in separate housings.~~

16. (Currently Amended) A real time PCR instrument according to claim 15 ~~comprising one light source~~ wherein the reaction vessels comprise capillaries.

17. (Previously Presented) An instrument according to claim 15, wherein said central detection wavelengths are selected from a group of range of wavelengths, said group consisting of 520-540 nm, 545-565 nm, 570-590 nm, 600-620 nm, 630-650 nm, 660-680 nm, and 700-720 nm.

18. (New) A real time PCR instrument according to claim 16, wherein the capillaries are glass capillaries having an outer diameter of less than 5 mm.